

- a. Incorrect clutch adjustment.
 - b. Damaged or incorrectly assembled clutch lever assembly.
 - c. Warped steel plates.
 - d. Swollen friction plates.
 - e. Warped pressure plate.
 - f. Incorrect clutch spring tension.
 - g. Incorrectly assembled clutch.
 - h. Loose clutch nut.
 - i. Incorrect clutch mechanism adjustment (change clutch).
2. Engine oil:
 - a. Oil level too high.
 - b. High viscosity oil.

Rough Clutch Operation

1. Damaged clutch outer slots (change clutch).
2. Damaged clutch center splines (change clutch).
3. Incorrect engine idle speed.

Transmission is Hard to Shift

1. Clutch wear or damage:
 - a. Incorrect clutch adjustment.
 - b. Damaged clutch lifter mechanism.
2. Damaged shift drum shifter plate.

TRANSMISSION

Transmission symptoms can be difficult to distinguish from clutch symptoms. Make sure the clutch is not causing the problem before working on the transmission.

Transmission gears on FM and TM models are manually shifted using a conventional foot lever. On FE and TE models, the transmission gears are shifted using an electric motor that rotates the shift shaft through a set of reduction gears. (Refer to Chapter Nine).

Faulty Electric Shifting (2000-2002 FE and TE Models)

Before following a troubleshooting procedure, determine if the shifting problem is due to the electric shifting system or internal shift components. Install the emergency manual shift lever (**Figure 24**). With the ignition switch *off*, attempt to shift the gears.



CAUTION

Only use the manual shift lever for emergency or troubleshooting purposes. Continued use may cause internal damage to the master shift arm. Do not operate the manual shift lever while operating the ATV. The lever must be hand-operated and never operated using a foot.

NOTE

It may be necessary to move the ATV backward or forward to engage gears while using the manual shift lever.

NOTE

If the electric shift will not operate after the manual shift lever was used, turn the ignition switch off and on to recycle the ECU.

If the gears shift, follow the electric shift troubleshooting procedure. If the gears cannot be shifted using the manual lever, refer to the possible causes in the following sections.

The electric control unit (ECU) controls the shift mechanism. Refer to Chapter Nine. The ECU can detect faults and will enter a *failure mode* if a problem exists. In the failure mode, the electric system is disabled and will not function. The ECU on 2000-2002 models does not display a trouble code or provide a means to identify a problem. The ECU leaves the failure mode and resets automatically when the ignition switch is turned off, but will return to the failure mode if the problem persists when the ignition switch is turned back on.

Refer to the chart in **Figure 25** when troubleshooting electric shifting related transmission problems. Note the following:

25

ELECTRIC SHIFT TROUBLESHOOTING CHART (2000-2002)

*Before replacing the ECU, take the vehicle to a Honda dealership or other qualified repair shop for further testing. Most parts suppliers will not accept the return of electrical components. Confirm that the ECU is faulty before purchasing a replacement.

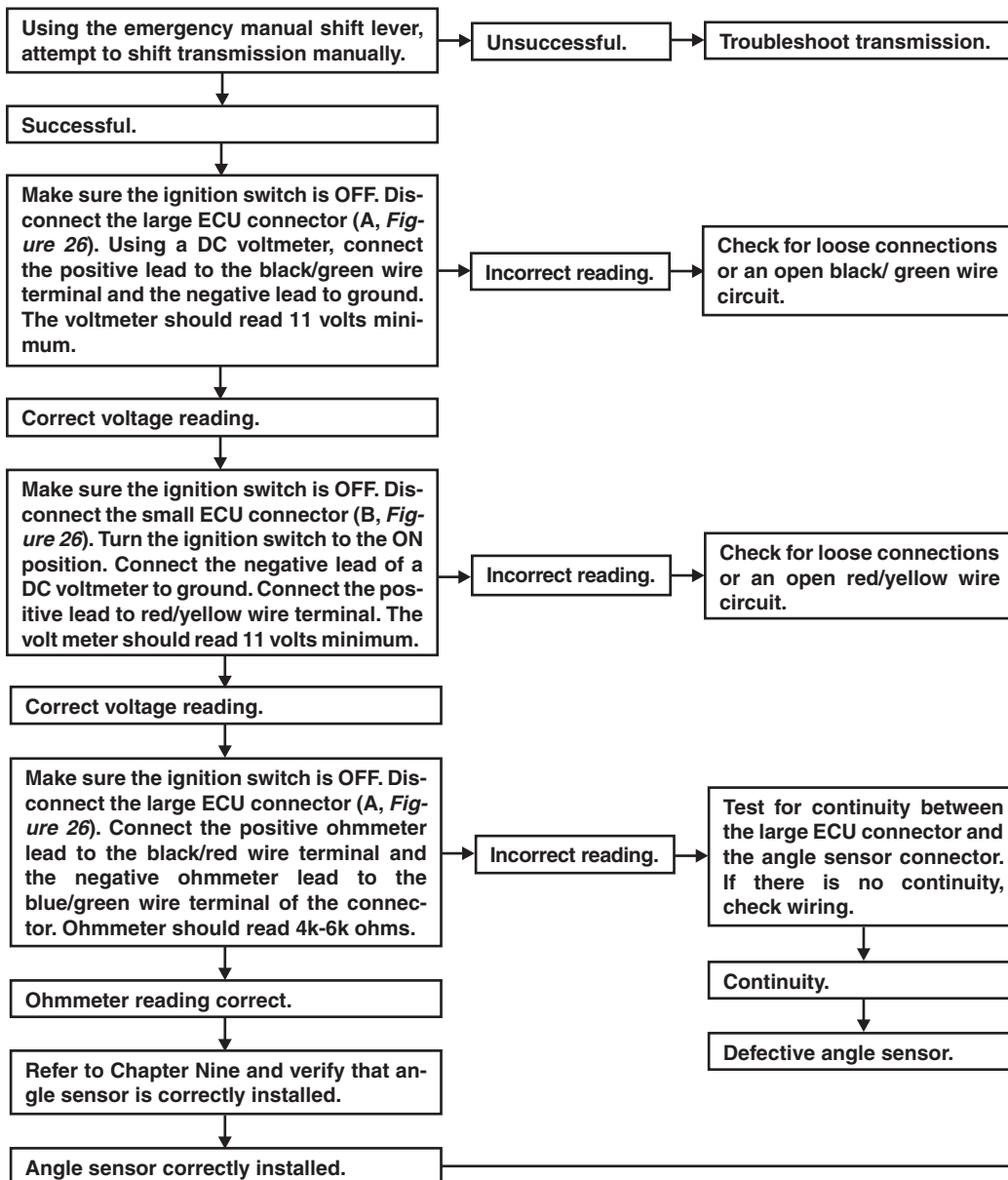
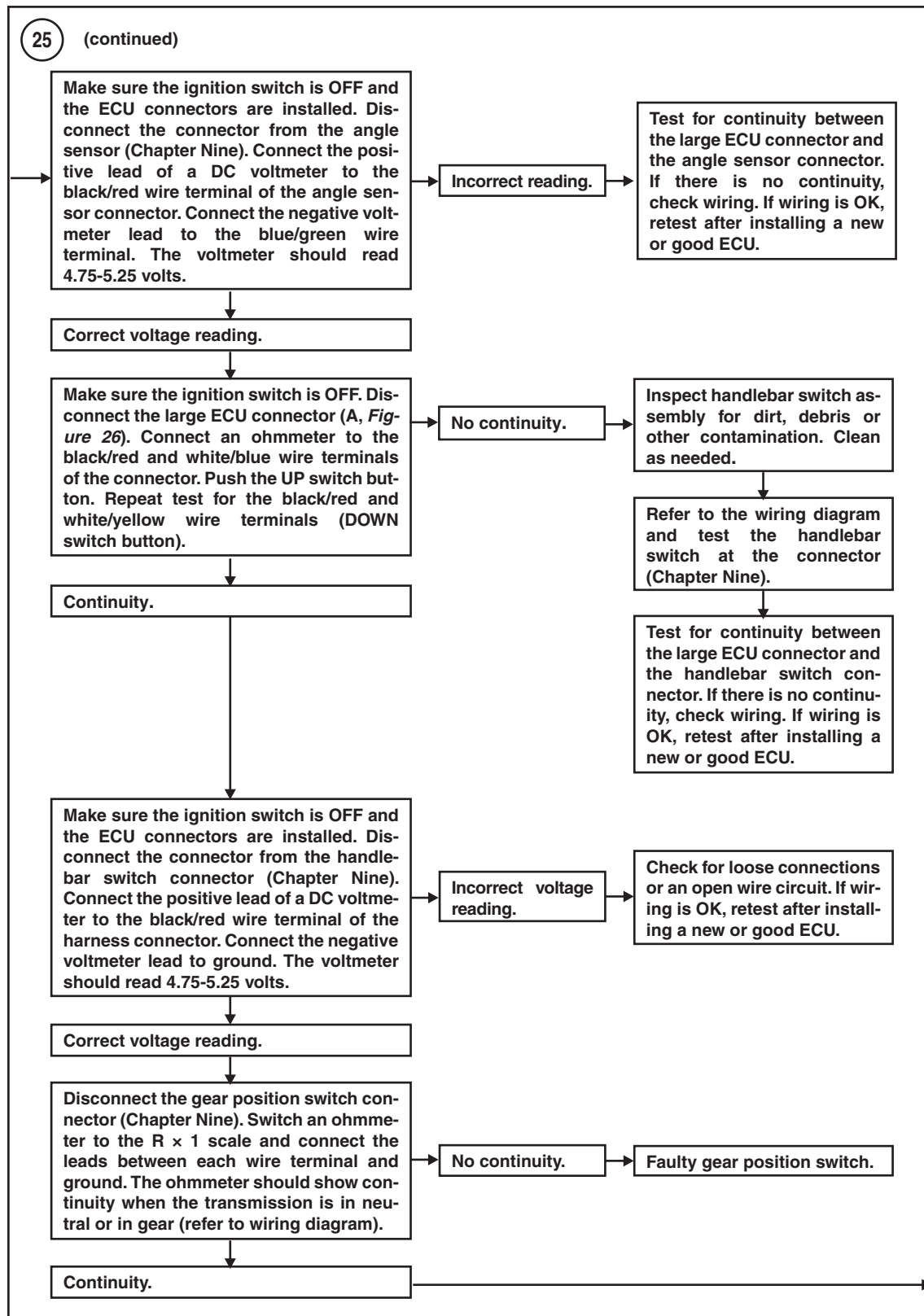
ELECTRIC SHIFT INOPERABLE

Figure 25 continued on the following page.



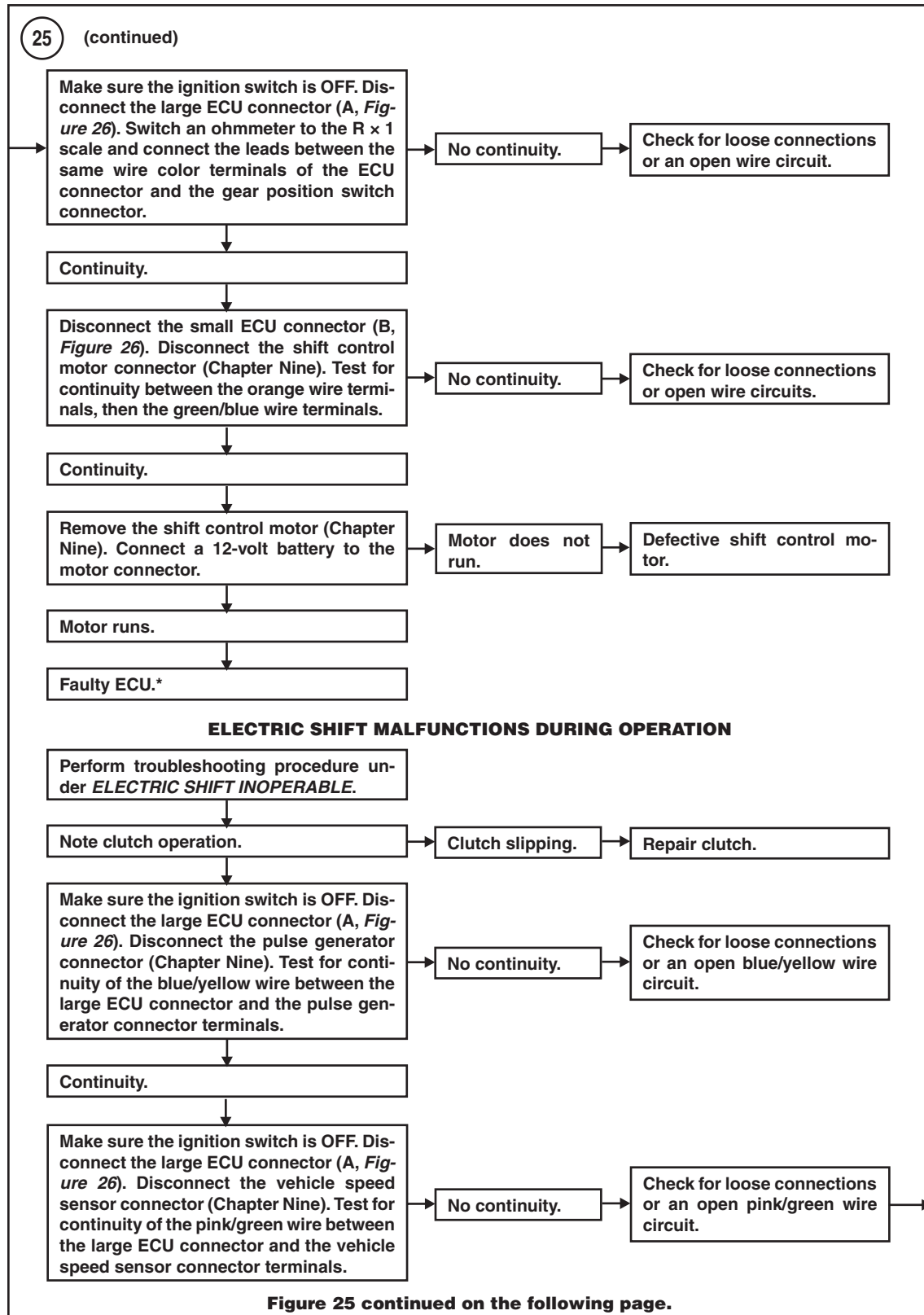
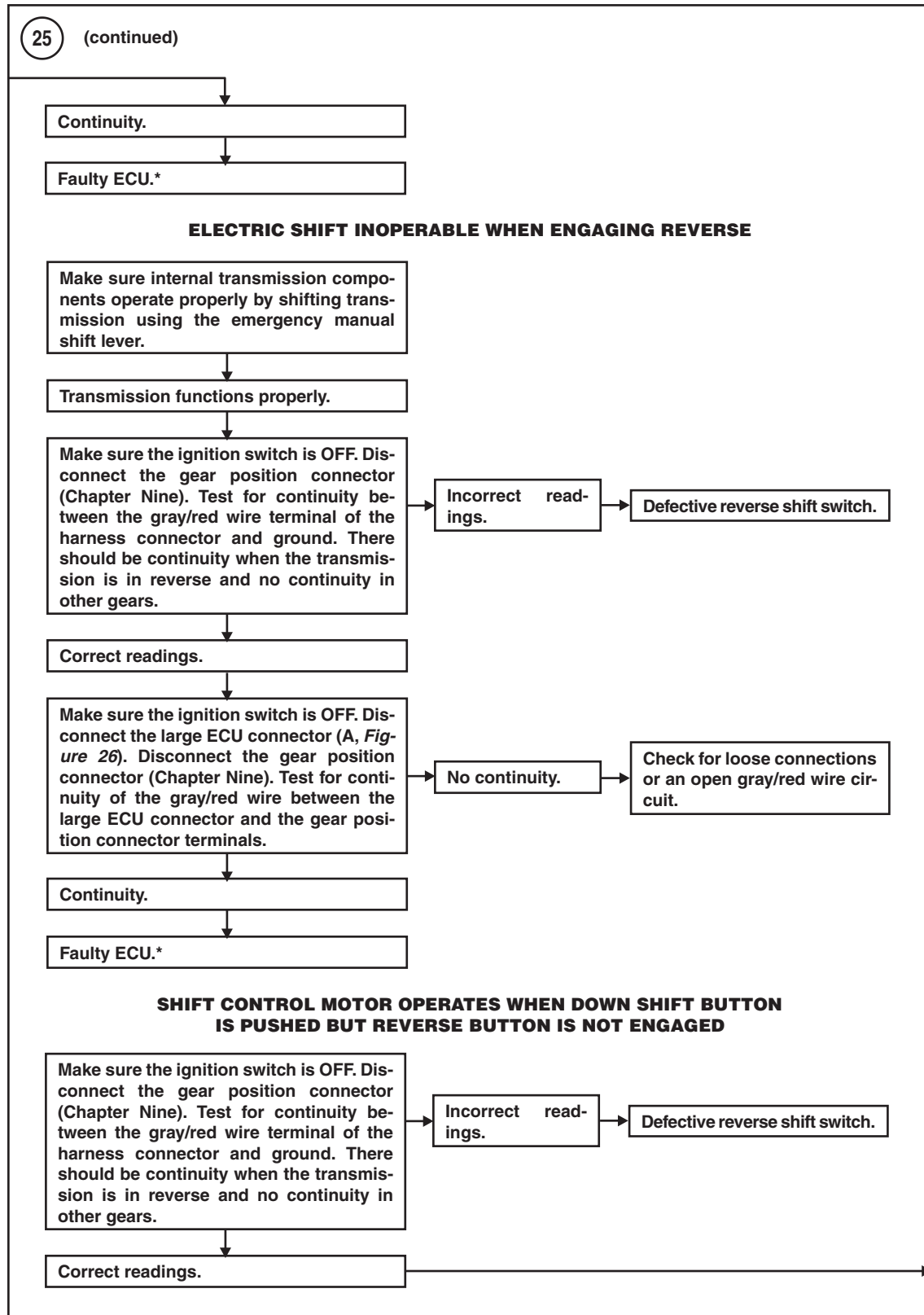
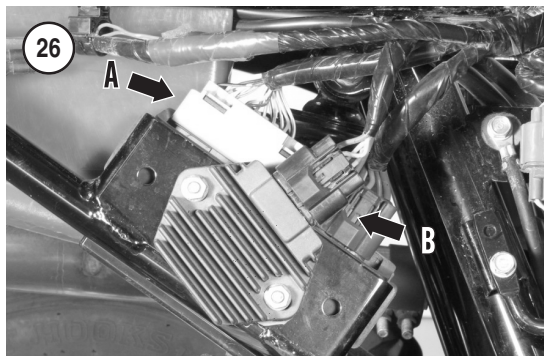
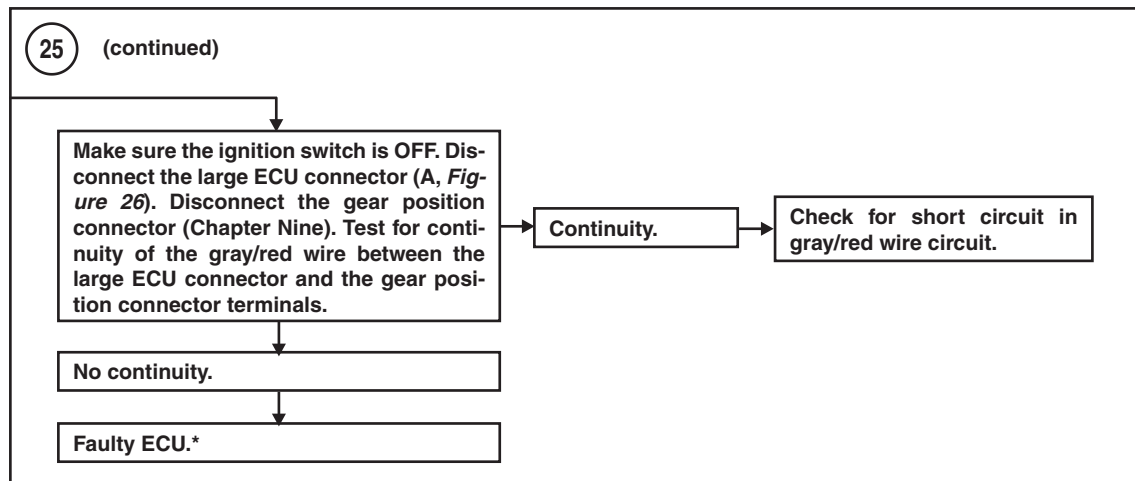


Figure 25 continued on the following page.





1. The ignition switch must be *off* unless directed otherwise.
2. The battery must be fully charged and in good condition.
3. The clutch must be properly adjusted.
4. The fuses must be good.

If the shifting problem is not caused by the electric shifting system, refer to the *Faulty Mechanical Shifting* section.

Faulty Electric Shifting (2003-On FE and TE Models)

Before following a troubleshooting procedure, determine if the shifting problem is due to the electric shifting system or internal shift components. Install the emergency manual shift lever (**Figure 24**). With the ignition switch *off*, attempt to shift the gears.

CAUTION

Only use the manual shift lever for emergency or troubleshooting pur-

poses. Continued use may cause internal damage to the master shift arm. Do not operate the manual shift lever while operating the ATV. The lever must be hand-operated and never operated using a foot.

NOTE

It may be necessary to move the ATV backward or forward to engage gears while using the manual shift lever.

NOTE

If the electric shift will not operate after the manual shift lever was used, turn the ignition switch off and on to recycle the ECU.

If the gears shift, follow the electric shift troubleshooting procedure. If the gears cannot be shifted using the manual lever, refer to the possible causes in the following sections.

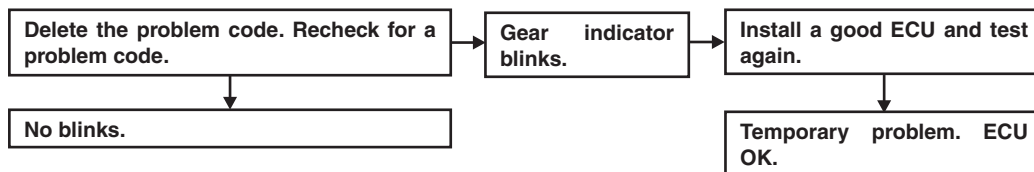
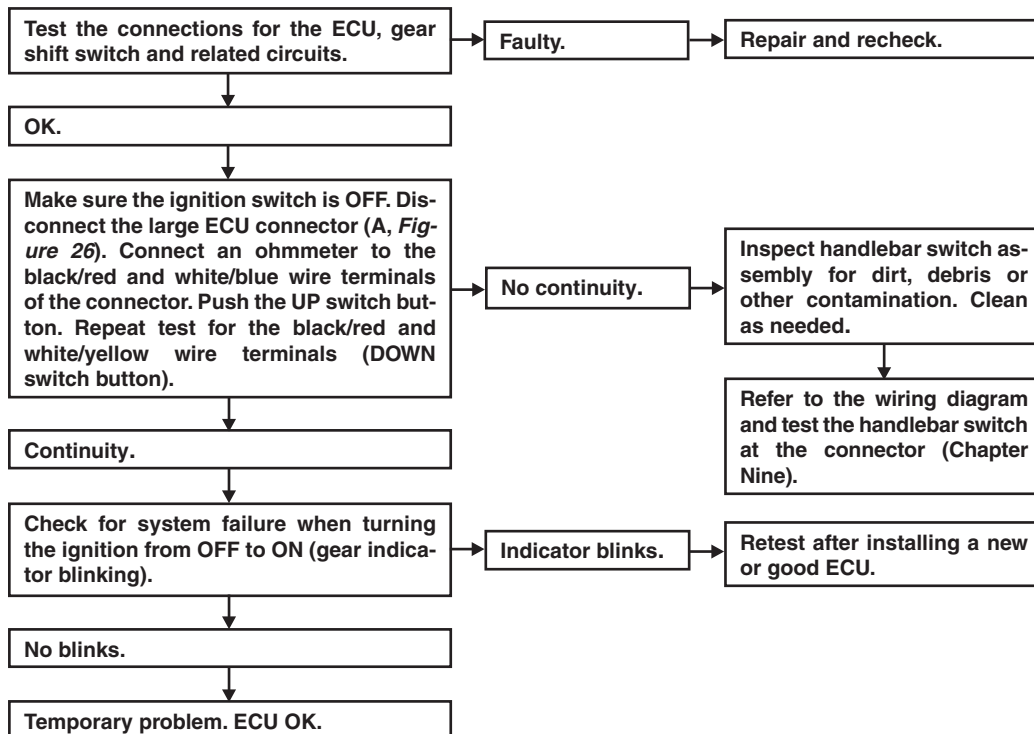
The electric control unit (ECU) controls the shift mechanism. (Refer to Chapter Nine). The ECU can detect faults and will enter a *failure mode* if a problem exists. In the failure mode, the electric system is disabled and will not function. The ECU on 2003 models provides a trouble code if it detects a problem. The ECU leaves the failure mode and resets automatically when the ignition switch is turned off, but will return to the failure mode if the problem persists when the ignition switch is turned back *on*.

Refer to the chart in **Figure 27** when troubleshooting electric shifting related transmission problems. Note the following:

27

TROUBLE CODE TROUBLESHOOTING CHART (2003-ON MODELS)**NOTE:**

Before replacing the ECU, take the vehicle to a Honda dealership or other qualified repair shop for further testing. Most parts suppliers will not accept the return of electrical components. Confirm that the ECU is faulty before purchasing a replacement.

TROUBLE CODE 1: ECU (WRITING AND RECORDING CIRCUIT)**TROUBLE CODE 2: ELECTRIC SHIFT SWITCH SYSTEM (UP AND DOWN)**

27 (continued)

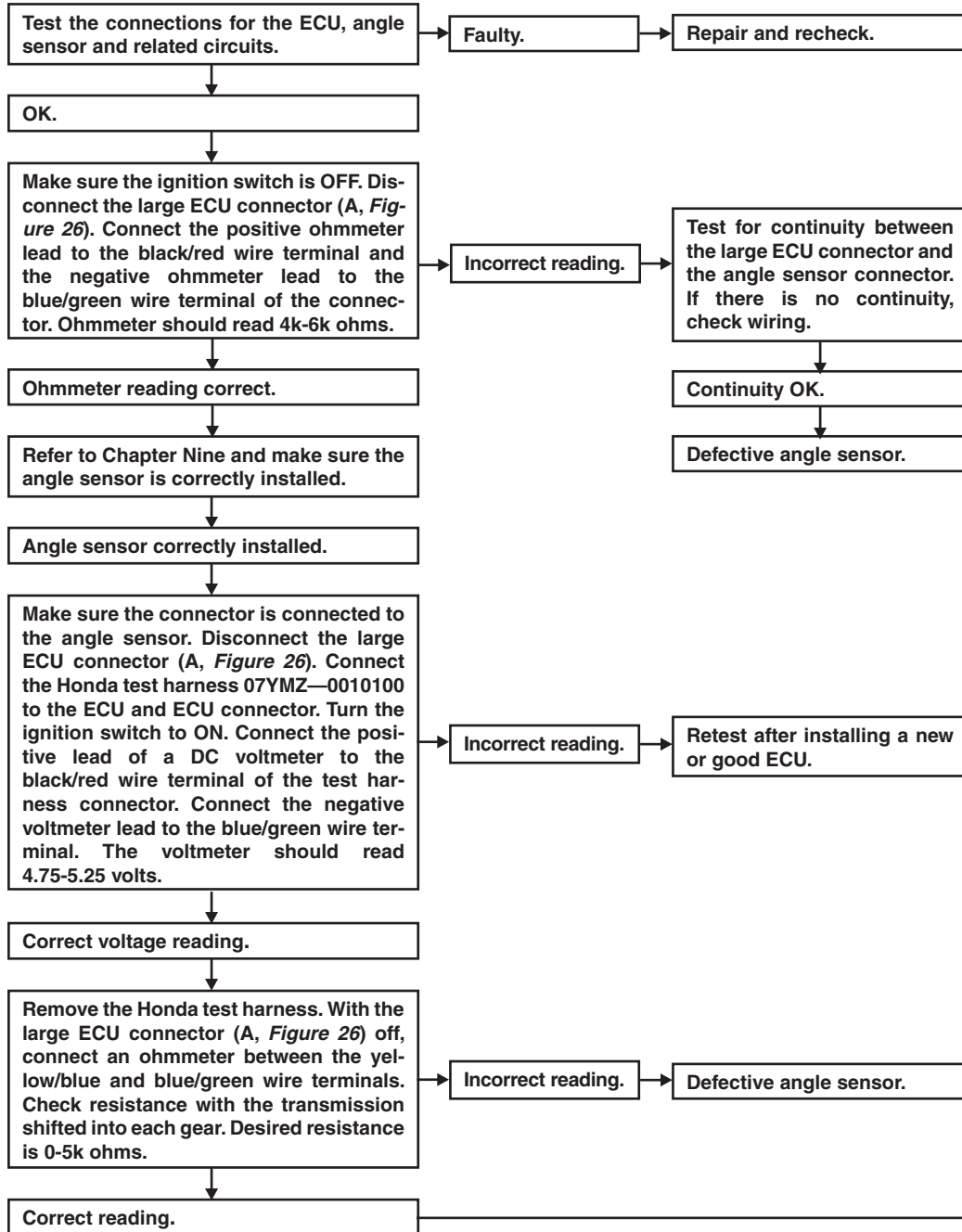
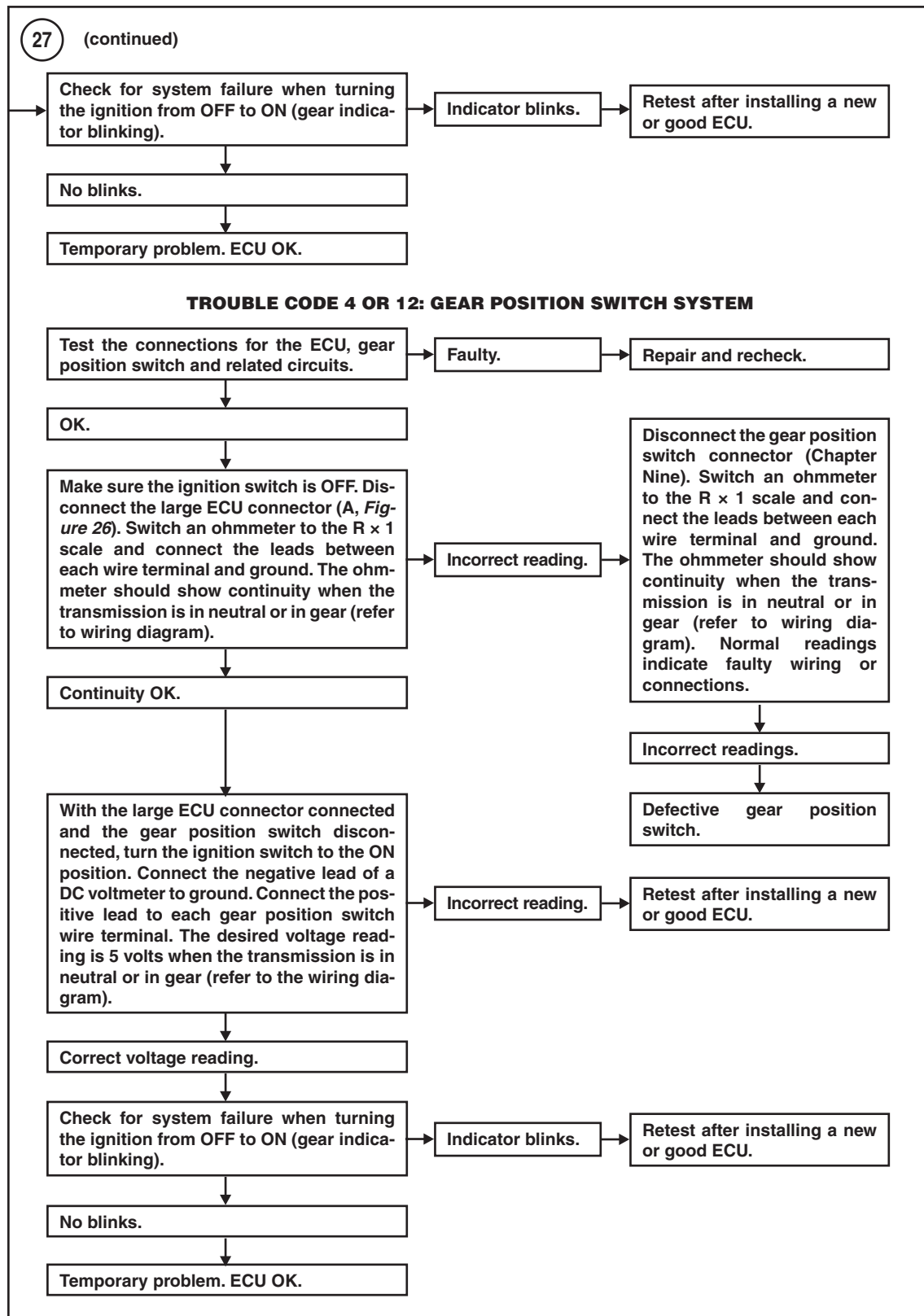
TROUBLE CODE 3, 8 OR 9: ANGLE SENSOR SYSTEM

Figure 27 continued on the following page.



27 (continued)

TROUBLE CODE 5: ECU MOTOR DRIVER CIRCUIT

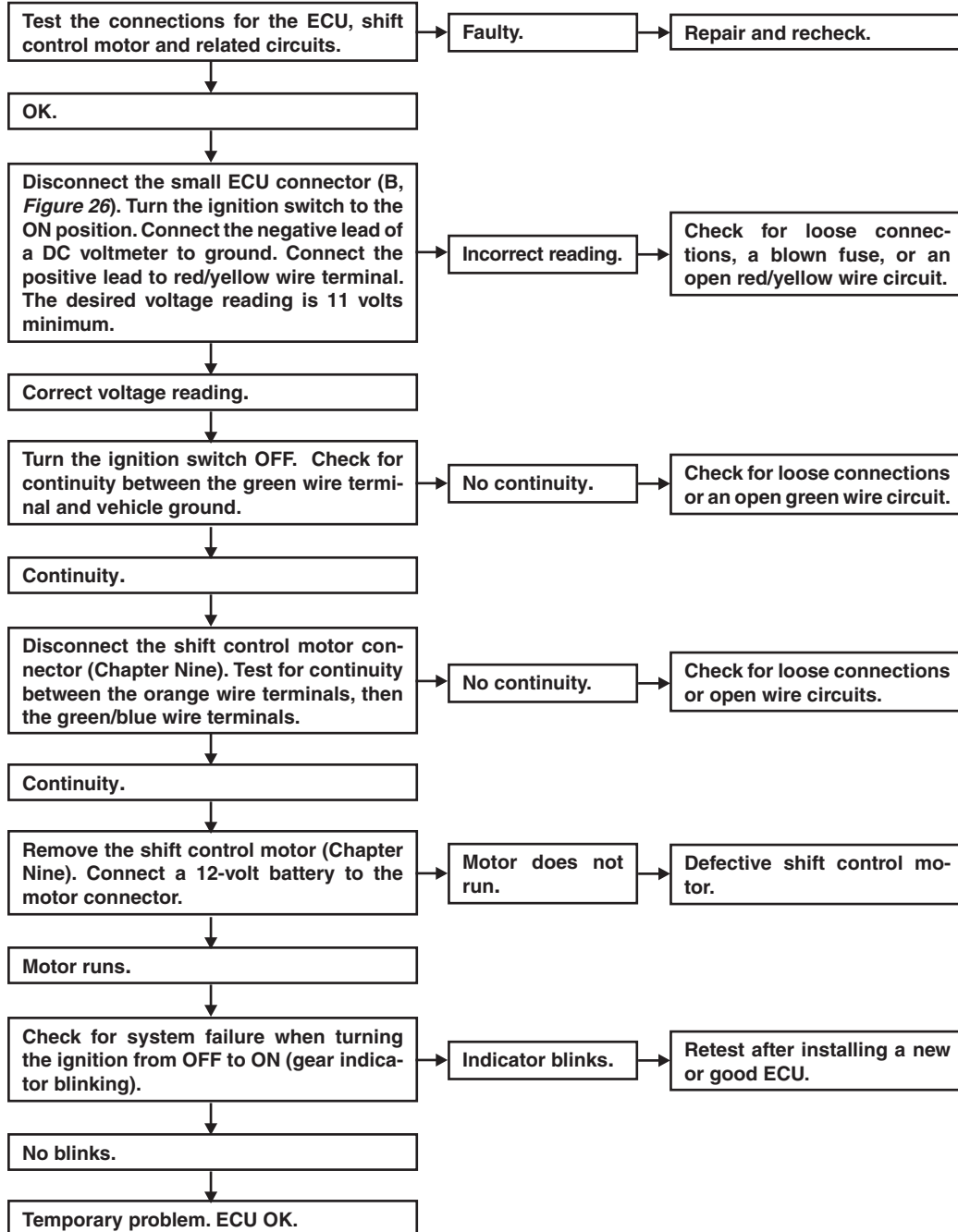
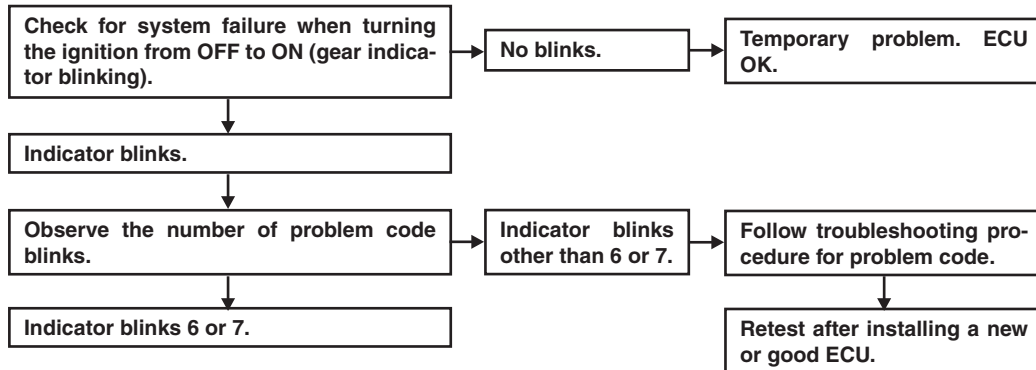


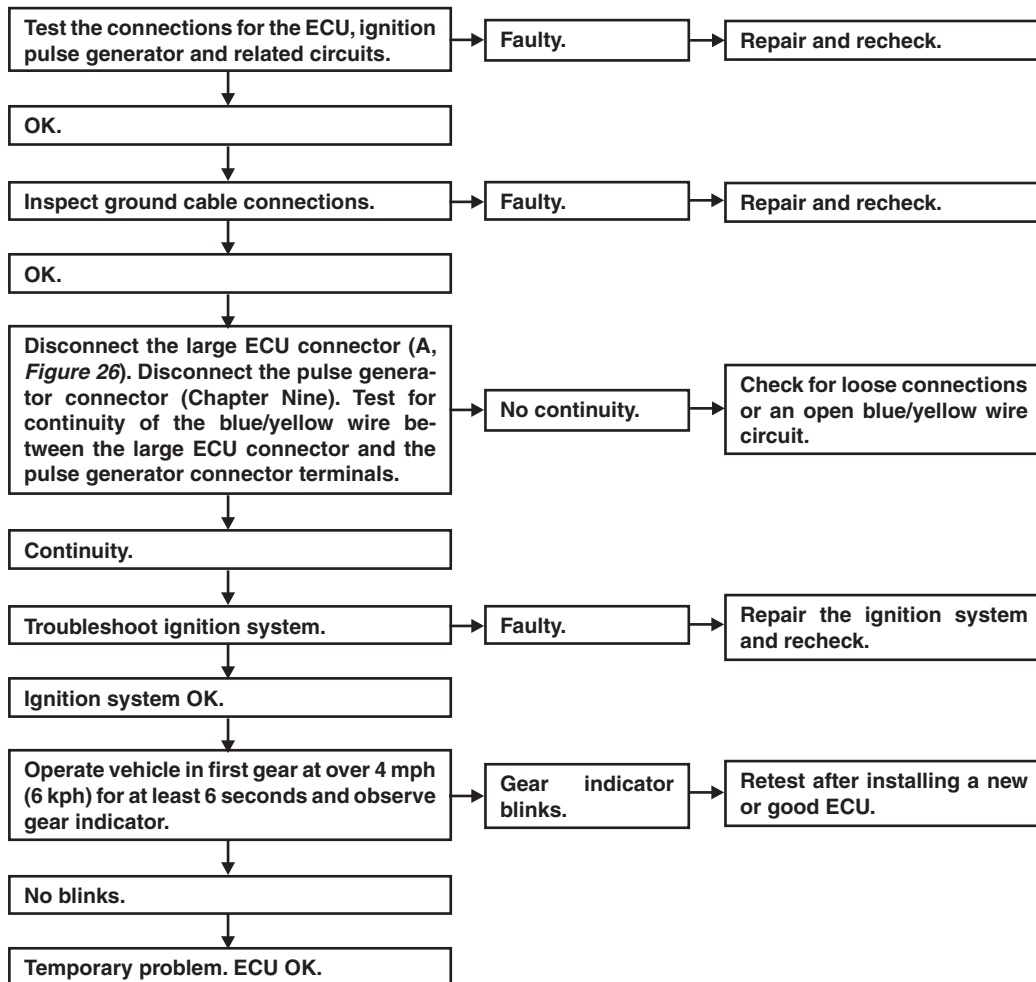
Figure 27 continued on the following page.

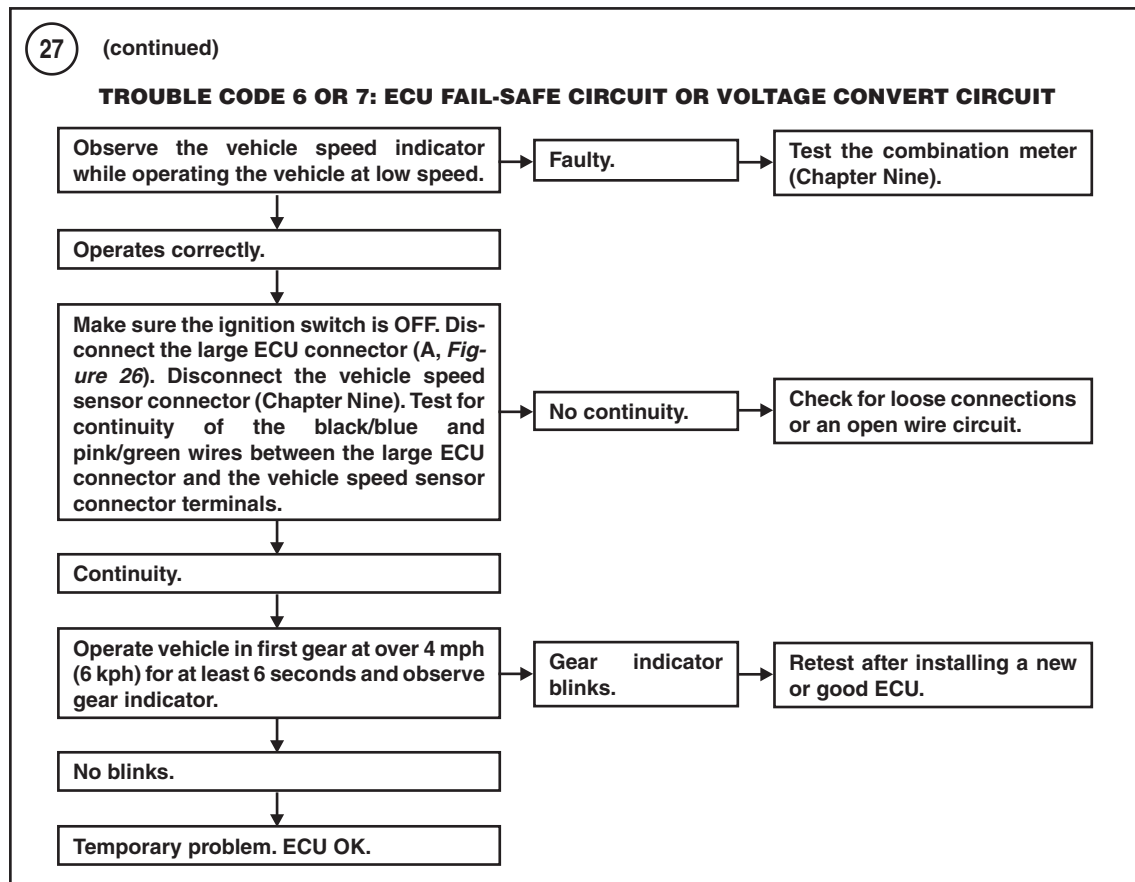
27 (continued)

TROUBLE CODE 6 OR 7: ECU FAIL-SAFE CIRCUIT OR VOLTAGE CONVERT CIRCUIT



TROUBLE CODE 10: IGNITION PULSE GENERATOR SYSTEM





1. The ignition switch must be *off* unless directed otherwise.
2. The battery must be fully charged and in good condition.
3. The clutch must be properly adjusted.
4. The fuses must be good.

If the shifting problem is not caused by the electric shifting system, refer to the *Faulty Mechanical Shifting* section.

Trouble codes

If a problem exists that the ECU can detect, the ECU will display a trouble code by blinking the gear indicator N on the combination meter (**Figure 28**). The number of blinks corresponds to the trouble code number.

Proceed as follows to obtain the ECU trouble code:

1. Make sure the ignition switch is *off*.
2. Make sure the transmission is in neutral.

3. Set the parking brake.
4. Simultaneously push the *up* and *down* shift buttons (**Figure 29**). Continue to hold the buttons while performing Step 5.
5. Turn the ignition switch *on*.
6. Release the shift buttons before the N appears in the gear indicator window on the combination meter.
7. Push in both shift buttons again for more than 3 seconds, then release. The trouble code should appear.
8. Count the number of blinks and refer to **Table 1**. Note that more than one trouble code may be displayed. The most recent trouble code is displayed first.
9. To delete a trouble code, perform the steps to display the code. While the code is blinking, push in both shift buttons.

NOTE

The gear indicator must function properly for the ECU to display a trouble code. Troubleshoot the gear indicator if it does not function properly.



Faulty Mechanical Shifting

The following sections outline possible causes of mechanical problems. When using the emergency manual shift lever on FE and TE models, be aware of the following:

CAUTION

Only use the manual shift lever for emergency or troubleshooting purposes. Continued use may cause internal damage to the master shift arm. Do not operate the manual shift lever while operating the ATV. The lever must be hand-operated and never operated using a foot.

NOTE

It may be necessary to move the ATV backward or forward to engage gears while using the manual shift lever.

Difficult shifting

The following problems apply to all models except as noted. On FE and TE models, make sure the

electric shift system operates properly before investigating the internal shift mechanism.

If the shift shaft does not move smoothly from one gear to the next, check the following.

1. Shift shaft:
 - a. FM and TM models—Incorrectly installed shift lever.
 - b. FM and TM models—Stripped shift lever-to-shift shaft splines.
 - c. Bent sub-gearshift spindle.
 - d. Damaged sub-gearshift spindle return spring.
 - e. Damaged gearshift linkage assembly shift shaft where it engages the shift drum.
 - f. Shift drum positioning lever binding on pivot bolt.
2. Stopper arm:
 - a. Seized or damaged stopper arm roller.
 - b. Weak or damaged stopper arm spring.
 - c. Loose stopper arm mounting bolt.
 - d. Incorrectly assembled stopper arm assembly.
3. Shift drum and shift forks:
 - a. Bent shift fork(s).
 - b. Damaged shift fork guide pin(s).
 - c. Seized shift fork (on shaft).
 - d. Broken shift fork or shift fork shaft.
 - e. Damaged shift drum groove(s).
 - f. Damaged shift drum bearing surfaces.

Gears pop out of mesh

If the transmission shifts into gear, but then slips or pops out, check the following:

1. Gearshift linkage:
 - a. Incorrectly assembled sub-gearshift spindle and gearshift A arm assembly.
 - b. Stopper arm fails to move or set properly.
2. Shift drum:
 - a. Incorrect thrust play.
 - b. Worn or damaged shift drum groove(s).
3. Bent shift fork(s).
4. Transmission:
 - a. Worn or damaged gear dogs.
 - b. Excessive gear thrust play.
 - c. Worn or damaged transmission shaft circlips or thrust washers.

Transmission overshifts

If the transmission overshifts when shifting up or down, check for a weak or broken shift lever return

spring or a weak or broken stopper arm and spring assembly.

Transmission fails to shift into reverse

If the transmission fails to shift into or operate in reverse properly, check the following possible causes. On FE and TE models, make sure the electric shift system operates properly before investigating the internal shift mechanism.

1. Incorrect reverse cable adjustment.
2. Loose or damaged reverse stopper arm.
3. Damaged reverse stopper shaft.

DRIVETRAIN

Noise is usually the first indication of a drivetrain problem. It is not always easy to diagnose the trouble by determining the source of the noise and the operating conditions that produce it.

Some clues as to the cause of the trouble may be gained by noting: whether the noise is a hum, growl or knock; whether it is produced when the ATV is accelerating under load or coasting; and whether it is heard when the vehicle is going straight or making a turn.

Drivetrain service procedures are covered in Chapter Eleven (front) and Chapter Twelve (rear).

CAUTION

Improperly diagnosed noises can lead to rapid and excessive drivetrain wear and damage. If you are not familiar with the operation and repair of the front and rear final drive assemblies, refer troubleshooting to a qualified Honda dealership.

Oil Inspection

Drain the gearcase oil (Chapter Three) into a clean container. Rub the drained oil between two fingers and check for the presence of metallic particles. Also check the drain bolt for metal particles. While a small amount of particles in the oil is normal, an abnormal amount of debris is an indication of bearing or gear damage.

Front Differential

Consistent noise while cruising

1. Low oil level.
2. Gear oil contamination.
3. Chipped or damaged gear teeth.
4. Worn or damaged ring gear bearing.
5. Worn or damaged ring gear.
6. Worn pinion gear or shaft side washers.
7. Worn or damaged ring gear and drive pinion.
8. Incorrect ring gear and drive pinion tooth contact.

Consistent gear noises during coasting

1. Damaged or chipped gears.
2. Gear oil contamination.
3. Incorrect ring gear and drive pinion tooth contact.

Gear noise during normal operation

1. Low oil level.
2. Gear oil contamination.
3. Chipped or damaged gear teeth.
4. Incorrect ring gear and drive pinion tooth contact.

Overheating

1. Low oil level.
2. Insufficient ring gear and drive pinion gear backlash.

Oil leak

1. Oil level too high.
2. Plugged breathe hole or tube.
3. Damaged oil seal(s).
4. Loose cover mounting bolts.
5. Housing damage.

Abnormal noises during starting or acceleration

1. Worn or damaged cone spring or shim.
2. Excessive pinion gear backlash.
3. Worn differential splines.
4. Excessive ring gear and drive pinion backlash.
5. Loose fasteners.

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